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ABSTRACT

Many problems are encountered by school districts regardless of size. State and federal involvement in education provides certain financial resources, but also makes demands for accountability. This creates conflicts between local program development and the requirements of state and federal regulations, and particularly complicates the measurement of student progress. Recent developments in measurement using the procedures developed by George Rasch provide great advantages in the flexible and comprehensive measurement of student achievement. These procedures provide a means to equate local measurement to the results of nationally distributed commercially published tests. Among other advantages of the Rasch item bank system are: (1) small schools may develop a curriculum and design tests to measure student achievement in that curriculum; (2) teachers and community members can write their own items and calibrate them locally; and (3) using a criterion referenced approach, selection of items may be made relevant to community goals. Among the disadvantages are: (1) measurement of specific goals is limited to comprehensiveness of available item banks; and (2) calibrated item banks occur only in certain areas of the curriculum (mostly basic skills). Since the use of calibrated item banks offers more flexibility for the measurement of student achievement, it is appropriate to rural school systems, such as the Hopi Reservation School System in Arizona. (JAZ)

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IMPLICATIONS OF RASCH CALIBRATED ITEM BANKS FOR MEASUREMENT OF THE LOCALLY PLANNED CURRICULUM

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Implications of Rasch Calibrated Item banks for Measurement of the Locally Planned Curriculum

Working with many school districts, some of them quite small, shows that they all share a need for methods of (1) measuring educational impact on student and community, and (2) using measurement to improve this impact.

Rasch calibrated item banks permit measurement of achievement which can be equated to national or local norms. Such procedures allow educators and community members to select items relevant to actual instruction.

The resulting scores make it possible to evaluate success in coverage of the local curriculum. This enables measurement of progress toward achieving the goals set by school and community.

Measurement based on items reflecting the actual local curriculum pinpoints specific areas in need of attention and thus facilitates improvement.

The tools of Rasch technology thus provide means for involving teachers, administrators, and community representatives in an ongoing evaluation of student educational achievement.

A STATE LEVEL VIEW OF SCHOOL DISTRICTS

A view of local school districts from the State Department of Education level reveals districts that vary in many dimensions. These include cultural and religious composition; land wealth; geographic configurations; political persuasion; and citizen awareness. These differences are reflected in the politically powerful issue of maintaining local control of schools. Woe unto the state school superintendent who does not support local control of schools.

The size of a district is a crucial factor which few State Department of Education employees can overlook. Most western states are composed of a few large and medium size districts and a myriad of small, primarily rural, districts. Some of the large urban districts virtually control state level decisions by the legislature and the Department itself. One characteristic of the large districts that may exert so much control is population. This means votes, and is a crucial factor in school funding formulas. These result in large amounts of tax money and are invariably accompanied by regulations and legions of financial watchdogs. Large concentrations of population demand specialized services and programs staffed by specialists and professionals in addition to the normal configurations of teachers, principals, and Superintendent.

The hundreds of small districts are often characterized by a "fierce determination to maintain local control" and the will to "do it themselves." Lack of population density often means fewer votes and less political influence. This, in turn, can lead to less money generated in funding formulas. Specialized services are still needed but small numbers of clients don't justify the numbers of service specialists that are necessary. As a result multi-talented or generalist personnel are better suited to the small school situation. In many states rural school administrators are organized into associations which help them handle the excess costs generated by small numbers requiring specialized services. Personnel in small districts often wear "many hats," and are generalists (as compared to the specialists found in large districts). The needs, however, remain the same.

Rural educators tend to be more in touch with members of the community because they are not insulated by the layers of secretaries, specialists, and other personnel who in large districts absorb and deflect the ire or gratitude of citizens. Rural educators can't hide and they demand answers they can implement with a minimum of time taken from the primary function of schools--which is the education of students.

MEASURING THE MAIN PRODUCT OF SCHOOL DISTRICTS: STUDENT ACHIEVEMENT

Excellence in schools and education has become a political issue which has led to the selection of a teachernaut who tried to orbit the earth, and has stimulated nearly 50 state legislatures, which are involved in mandating changes in education in hopes of implementing educational excellence. No longer are educators the sole decision makers in education, local or

otherwise. The public, through its governing bodies and elected politicians, is asking hard questions. These are questions that can no longer be answered by educators on the basis of the same educational theory which governed decision making in the past.

The public and their spokesmen are demanding hard facts, data, measurement, and proof that the students are deriving educational benefits commensurate with the investment of public monies in school support. Title I ESEA and Chapter I ECIA first felt the demand for measurement and accountability. They responded by designing a system to measure the achievement growth of disadvantaged students which resulted from the congressional investment of approximately three billion dollars annually since 1965. Actual evaluation began in the middle 1970's and the positive results were such that they convinced congress at least once in the decade of the 70's to renew the investment.

State Departments of Education took the brunt of carrying out the Congressional mandates. These included the use of nationally normed tests to measure achievement in local school districts where disadvantaged students had been served with Title I or Chapter I funds. State departments also carried out state legislature mandates for proficiency testing at certain grade levels.

Steadily, for a decade, the politically sensitive ears of State Departments of Education heard cries of alarm from local districts who pointed out that nationally normed and published tests did not really measure what districts had decided to teach. Nor did local educators feel they should give up local control of curriculum to teach the content or language that publishers used in their test items which were intended to measure student achievement.

State Departments strongly suggested that districts should test what they taught, but had to dismiss teacher made tests as a viable method because of the many problems associated with norms (national or local) and the aggregation of data across many populations within the United States.

Today, there is an alternative which may resolve the controversy between nationally published and locally developed tests. The alternative lies in the use of Rasch calibrated item banks to assess, measure, and evaluate student achievement.

And that alternative is just in time. State legislators are insistent in their demands that educators at all levels assess student populations, measure achievement, and report student gains (either positive or negative).

Legislators, faced with economic shortfalls which affect state budgets and local school support, are again asking if they are getting their money's worth in terms of student achievement. Predictions are that, although the questions now want answers in terms of basic skills achievement, down the road there may be demands for accountability as to the role education plays in solving societal ills such as unemployment, economic growth, cultural bias, juvenile justice, and a host of other issues.

THE CASE FOR LOCAL SCHOOL DISTRICTS AND ITEM BANKS

If, as stated earlier, the greatest percentage of school districts are experiencing crises in specialist/generalist personnel issues, as well as in population base/financial structures, who in a local school district is going to have the time, the awareness, and the commitment to become knowledgeable as to the nature and use of an item bank? And for what purpose?

Probably few if any school district personnel will be "commissioned" to find an item bank whether it is to be used by the district for task assessment, evaluation, or as a teacher resource for instructional evaluation. However, just as I draw a hopeless conclusion, inevitably, a small cadre of educators steps forth. These seekers are sent by forward looking superintendents who have salvaged a small margin in the budget to finance such a search or by educators whose vision and need for better ways of doing things have galvanized them into self-actualizing searches for those better ways.

Rasch techniques and use of item banks are a "better way." They lend themselves to involvement of educators in evaluation procedures and use of the results that is unprecedented in the field of educational evaluation. Rasch tools can implement the flexibility of item banks. Such banks can adapt items to local language and conditions. The processes of scoring and score management are readily adaptable to the computer technology available in virtually any school district (even if it is limited to microcomputers).

Flexibility of item banks, equating scores to local and/or national norms and the potential for processing data on existing equipment make it possible to implement Rasch procedures with moderate financial outlay and maximum potential for staff involvement and use.

Teachers can select items which reflect their instruction, schools can select items which align curriculum and guide goal setting. The community can match student achievement and community goals, and school administrators can monitor instruction as it occurs. By providing relevant, useful, measurement schools can identify what they are doing and document how well they are doing it.

THE CASE FOR RASCH CALIBRATED ITEM BANK USE IN ONE SCHOOL DISTRICT

The proceding section is essentially an abstract of the salient points and potential benefits of use of Rasch calibrated item banks. These points and theoretical benefits are merely academic until a clarification of the need and the "fit" of the system to a specific district makes the case in such a fashion that the possibility becomes an indisputable fact.

The exemplar school district is currently a Headstart to grade 8 elementary school system on the Hopi Reservation in the Northeast corner of Arizona. During the school year 1986-87 the system will expand through grade 12 with the opening of a new high school in the fall of 1986. All but one of

the elementary schools and the high school are administered by the Bureau of Indian Affairs and must comply with federally mandated regulations. The other elementary school is contracted by the Tribe and is run by a community elected school board.

The schools are each much like unified local districts under one superintendent with local village school or governing boards in addition to a reservation wide school board. The governing boards are fiercely proud of their autonomy and the villages view the village school as an integral part of the community.

With the advent of a new Jr.-Sr. High School on the reservation, high school age students, grades 9-12, will no longer be sent to boarding schools. They will instead be bused from villages each morning and afternoon to the reservation high school--Hopi High grades 7-8 will be bussed from current village grade schools to attend the Jr.-Sr. High School. Sending grade 7 and 8 students to the high school will mean a loss of enrollment in village schools and the possible closure of some schools due to lack of students. This could create a situation where a school would not be cost effective to operate--a major concern of government funding sources and now a major concern of villagers.

The rules and regulations which provide the reality within which these schools must operate are as follows: FEDERAL REGISTER 36.30 Standard X-Grading requirements - Rules and Regulations.

(a) Each school shall implement a uniform grading system which assesses a student's mastery of the prescribed objective of the courses of study undertaken. The mastery of prescribed course objectives shall be the primary measure of academic attainment for reporting student grades on report cards.

(b) The information derived from student instructional evaluations shall be shared with the student and with the parents and shall be used to give teachers and students direction for subsequent learning activities.

(c) Parent/teacher and parent/teacher/student conferences focused on the student's instructional progress and development shall be held, where feasible and practical, to provide an additional means of communication between home and school. Residential schools may meet this standard by documenting the communication of student grades on report cards to parents.

36.3] Standard XI - Student promotion requirements.

(a) Each school level or equivalent shall have a minimum criterion for student promotion based primarily on measurable mastery of the instructional objectives.

(b) Criterion-referenced tests that evaluate student skills shall be utilized for measuring the mastery of instructional objectives. The evaluation results shall form the basis for the promotion of each student.

II. Village School Boards and Citizens:

1. Help determine the curriculum of the village school.

2. Want to measure progress of student learning on village goals for education and on national norms.

The advantages of the Rasch Item Bank System that follow are situation specific and atypical when compared to most school districts and their populations. A great difference is the feeling of the community members about the village school and their district involvement with all facets of the school. Village boards select teachers, advise teachers, decide discipline policy, and assume responsibility to assist in discipline. The community offers, to most students, the nuclear family, the extended family, and the clan system to guide, discipline and care for the children. The culture, ceremonies, and different languages of home and school which exist for many students all serve to contribute to an atypical school setting.

ADVANTAGES OF RASCH ITEM BANK SYSTEM

1. Village schools may develop a curriculum which the community can support and then can construct tests to measure student achievement as they progress through that curriculum.

   A. They can build or purchase Item Banks from which to choose items relating to the goals they have taught.

   B. To implement criterion referenced testing items may be clustered around school goals.

   C. Calibrated items provide both individual and group scores.

   D. Cross linking with national norms may be developed for a broader comparison.

2. Teachers may select items they feel are "functional level" to measure achievement with less chance of students "topping" or "bottoming" out of the measurement range of the items. This approach substantially improves measurement of individual student achievement.

3. Teachers and community can write their own items and "calibrate" them locally and/or district wide.

   A. Local language (English dialect) can be used.

   B. It is conceivable that parts of the cultural curriculum can be measured eventually.

4. Microcomputers and appropriate software are available to score basic skills tests.

5. If teachers find a "slow group" of students they can identify test items they have taught and refer items not taught to decision makers who can "adjust" curriculum.

   Teachers will know then what previous teachers had not had time to teach. Goals, expectations, and objectives at grade levels can be adjusted without the guesswork inherent in conventional systems. This improves accountability of teachers and identifies grade levels that may need extra help or concentration of resources.

6. Items using "local language," thinking, relationships, etc. can be calibrated, compared with traditional items and used as a basis for deciding instructional strategies and language that is most effective.

7. In the Criterion Referenced approach selection of items may be made relevant to community goals and they can be measured in addition to other school goals.

8. Conceivably, items that measure science, social studies, and other instructional fields can be developed.

Disadvantages

1. Measurement of specific goals is limited to the comprehensiveness of available item banks.

2. Teacher judgment of a student's functional level is subject to error until the teacher has previous test scores to use in predicting present performance.

3. Calibrated item banks occur only in certain areas of the curriculum (mostly in the basic skills). Item bank development needs to proceed in other fields such as science and social studies.

SUMMARY

Many problems are encountered by school districts regardless of size. In cases where population density and resulting funding fall below the level which permits an adequate specialized staff to provide curriculum and measurement services imaginative staff utilization must be used to fill the gaps. One procedure that is useful is to recruit generalists who can serve more than one function.

State and federal involvement in education provides certain financial resources, but also makes demands for accountability. This creates conflicts between local program development and evaluation, and the requirements of state and federal regulations. This particularly complicates the measurement of student progress.

Recent developments in measurement using the procedures developed by George Rasch provide great advantages in the flexible and comprehensive measurement of student achievement. These same procedures provide a means to equate local measurement to the results of nationally distributed commercially published tests.

Since the use of calibrated item banks offers far more flexibility for the measurement of student achievement than any other system available at the present time, it is especially appropriate to a school system as deeply imbedded in the life and culture of the communities as is the Hopi system. This program demands choices and flexibility that teacher and community involvement can influence and adapt to meet their needs.

In the Hopi tribe, village committees and boards have a strong role in what the school does and how the students act regarding education. These voices have echoed for over 1,000 years across the Mesa tops regarding education of the young people and these same strong beliefs are voiced today. Current Effective Schools literature heaps accolades on parent involvement as a cornerstone of student achievement. The Hopi tribe has parent involvement and now it must develop a responsive and flexible measurement system that will meet its educational needs.

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